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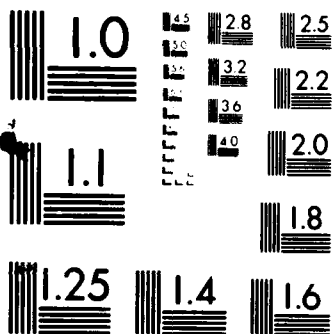
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(6) SOVIET MAINTENANCE SUPPORT  
FOR A MOTORIZED RIFLE  
BATTALION

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Seminar in Current Logistics Problems

Spring Quarter 1978

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SUBJECT: Best Logistics Research Paper Award (ALMC/FIT)

To Whom It May Concern:

On 19 June 1978, Captain Patrick F. Webb was presented a plaque by John C. Goodrum, Executive Vice President, Society of Logistics Engineers, International, for the Best Logistics Research Paper Award (ALMC/FIT) for his paper on "Soviet Maintenance Support for a Motorized Rifle Battalion."

*Kim Newlin*

KIM NEWLIN, C.P.L.  
Chairman,  
Best Logistics Research  
Paper Award (ALMC/FIT)

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"the applied science of keeping things going"

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## CHAPTER I

### INTRODUCTORY REMARKS

Section 1. Subject Area: In the United States Army today, the emphasis in the combat arms is on mobility, firepower, and shock action. In an analysis of the enemy in initial stages of our PPBS system, the emphasis is on analyzing his effectiveness and characteristics of mobility, firepower, and shock action. All our efforts are detailed to examining and developing our ability to close with and destroy an enemy by making maximum use of these three characteristics of operation or preventing the enemy from using them to his advantage against us.

There does not appear to be an equal amount of time being spent on analyzing how this operation will be supported. The expenditure of time is not being expended by those of us in the combat arms, and we are the ones who are generating the requirements. We are the ones for whom the traditional logistics bridge was designed.

In the officer advanced courses today, the emphasis on operations continues. The majority of time a student spends in the course is devoted primarily to the command and staff functions of operations. The logistics aspects of operations are not given equal time or emphasis.

This disproportionate interest in the tactical side of operations carries into threat analysis and study. There is a preponderance of both classified and unclassified data and information available on Soviet tactical doctrine, but there is not the same amount of information available or taught on Soviet Logistics.



Why is a knowledge of Soviet Logistics important? Napoleon said, "an army moves on its belly." Socrates, a citizen soldier and philosopher said, "The general must know how to get his men, their rations, and every other kind of stores needed in war." These men felt logistics were very important. Napoleon discovered that logistics and weather, if not accounted for, can be devastating to anyone fighting the Soviets.

Many analysts today feel that the Soviet's "Achilles' Heel" is their logistics organization and doctrine. If these analysts are accurate, this can be an advantage for a commander fighting a Soviet force. If, on the other hand, they are wrong, this miscalculation can add to the devastation a U. S. commander will be confronted with when he receives his first call of "Here they come."

To provide potential commanders the opportunity to consider the facts, or at least what we know as facts, the combat arms advanced courses, and schools, in general, should consider the Soviet logistics doctrine, organization, and general operation. The officers in the courses taught at these schools should know their enemy both tactically and logistically. They should know what their counterpart in a Soviet mechanized unit has at his call for support. This knowledge will not only give the officer a better understanding of his opponent, but it will allow him to adjust his actions to counter the Soviet effort.

It is therefore <sup>the</sup> purpose of this paper to provide a concise study of a key facet of logistics of a Soviet mechanized unit, the Soviet motorized rifle battalion. This study will be written so that it can be easily used for reference either in a classroom environment or for individual study. Such ~~use~~ of this document will help fill the gap in threat logistics study.

→ to p. 63

Section 2. Research Question: This paper gives me the chance to conduct an intense research into Soviet logistics in general and allows me to concentrate on an area of logistics with which I am intimately familiar, maintenance. The specific research question is "How is a Soviet motorized rifle battalion maintained?" Related questions are:

1. What influence has the Soviet geo-resources had on Soviet logistics and maintenance in particular?
2. Has the recent military history ( since World War II) exerted a noticeable influence on Soviet military developments?
3. Is Soviet logistical doctrine conducive to good maintenance?
4. What effect has Soviet "blitzkrieg" tactics had on Soviet maintenance operations?
5. Do the Soviets follow any specific principles in performing this maintenance?
6. How intricate is the Soviet organization for maintenance?

Section 3. Discussion: Logistics in the Soviet Army dates back to 1917 with the overthrow of the Czar and the establishment of the Communist party as the ruling force in Soviet life and government. Soviet logistics responded to the requirements of defeat of Hitler and the protection of "Mother Russia." Following the Great World War II, the Soviets came under the tyrannical influence of Generalissimo Joseph Stalin. Soviet logistics were again called to support the far flung armies of the Stalin era. During this time, the Army of the Soviet Nation developed its separate command for logistics. Following Stalin's death, the logistics of the army reacted to the influence of Khrushchev and, finally on his demise, to the development and support of a new "mobile army."

Did this history add or take away from Soviet military logistics' effectiveness? What was the impact on priorities and techniques of support?

As has been said before, many analysts feel that the weak point of the Soviet Army is its logistics system. The background of most Soviets is a single one. The nation is, in many respects, agrarian. How, then, does its army understand the complexities of twentieth century maintenance? These analysts feel that the Soviet's logistics system has shortcomings and is too austere, and other analysts say that it is antiquated and inept.<sup>1</sup> Is this school of thought right? Does it matter? The answer to these questions are key. If they are in the positive, there is a serious weakness in the "Russian Bear." However, a positive answer will require and be reason for much concern.

The Soviet Army is reputed to have set a fifty to eighty kilometer rate of march per day for themselves in a massive formation. The Soviets have also placed particular emphasis on massed firepower concentrations.<sup>2</sup> These doctrine can be vividly seen in foreign powers such as the Syrian and Egyptian Armies. These armies have recently used typical, current, Soviet doctrine of tactical employment most effectively and dramatically.

On the Golan Heights in October of 1973, the Syrians attacked one Israeli Brigade with a force totaling no less than 800 tanks. This force

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<sup>1</sup>William A. Hotze and Terry L. Schott, "Soviet Logistics, How Good Is It?" Army Logistician (March-April 1976), p. 18.

<sup>2</sup>John Erickson, "Soviet Theater-Warfare Capability: Doctrines, Deployments, and Capabilities," The Future of Soviet Military Power, ed. Lawrence L. Whetten (New York: Crane, Russak & Company, Inc., 1976), p. 118.

attacked in a fifteen minute period.<sup>3</sup> On the Egyptian side, "the attack would invariably begin with a concentrated artillery barrage lasting half an hour, which would be concluded with five minutes of rapid fire concentrations fired by fifteen battalions of artillery and batteries of katyusha rockets; the barrage would conclude with a large quantity of phosphorescent ammunition."<sup>4</sup> A report even more startling indicated that, "In the first minute of the attack, 10,500 shells fell on Israeli positions at the rate of 175 shells per second."<sup>5</sup>

How is such an effort supported? There must be a substantial supply and transport organization in the Soviet force structure to meet these requirements. With such an organization, there exists a still more critical question, maintenance. Does the logistical doctrine allow for not only maintenance of itself but also the tactical elements?

In the tactical environment of massive "blitzkrieg," what happens when a unit or part of it becomes non-combat effective? Is there a maintenance system that has principles, organization, and employment techniques that facilitate assistance with a corresponding rapid response? Is this system capable of handling the quantity and variety of maintenance problems that may be presented in a high intensity battlefield environment? Does this maintenance system provide the response and flexibility the

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<sup>3</sup>Edward Luttwak and Dan Horowitz, The Israeli Army (San Francisco: Harper and Row, 1975), p. 372.

<sup>4</sup>MAJ GEN Chaim Herzog, The War of Atonement (New York: Little, Brown and Company, 1975), p. 199.

<sup>5</sup>*Ibid.*, p. 159.

commander of a motorized rifle battalion requires to be the essential element in Soviet tactical doctrine?

It is hoped that in meeting the purpose of the paper an insight will be given which will correspondingly answer these questions. In an effort to make this insight a simple process, the Soviet maintenance system will be viewed from two aspects. The first will be from a strategic standpoint to acquire depth and gain a more complete knowledge of the Soviets, their nation, military history, general tactical doctrine and organization, and their logistical doctrine, organization and hierarchy. The second will consider the "nuts and bolts" of Soviet maintenance. It will view the doctrine, organization, and operation of Soviet maintenance as it directly effects a motorized rifle battalion. It is hoped that this arrangement will provide information necessary for a basic understanding of Soviet maintenance.

Section 4: Limitations: This paper will be unclassified and therefore only will use unclassified source documents. With this level of classification, the paper can be used by anyone, anywhere, and at anytime. This will make it a document useful to all.

In considering the Soviet's capabilities, only their tactical capabilities will be addressed. This is not to say that the Soviet capability to use tactical nuclear weapons or be influenced by the effects of these weapons will be ignored. This paper will adhere to the concept called dual capability. This means that "nuclear and conventional weapons do not present an 'either/or' proposition . . . but rather it is a matter of 'both/and'--nuclear weapons are an indispensable element of war-fighting capability."<sup>6</sup> This concept will be discussed further, later. But suffice

it to say that to ignore it would be to take a biased view of Soviet capabilities, reactions, and doctrinal trends.

In discussing maintenance as it pertains to a motorized rifle battalion, it is necessary to look to the "FRONT" level of Soviet military organization. It is from this level that maintenance support for the battalion starts in the Soviet retail logistics system. There are cases where Front maintenance units will directly interface with battalion level units. For these reasons, this paper will consider logistics from as high as Front level to battalion level. The lowest organic element that will be discussed in the logistics chain is the battalion since it is the lowest level in which subordinate maintenance units are found.

The information used for this paper will come from translations of Soviet journals, Soviet manuals, and Soviet books. This information will be reinforced by writings of known and respected Soviet military analysts. U.S. military manuals and intelligence publications will also be used as source material.

In presenting the information, care will be taken to use documents which are comparable to those found in U.S. and NATO journals and books. The Soviet documents and books which are being used as source material are the same ones being used by the Soviet military in its professional and daily operational development of its forces.

They can be assumed to be part of an elaborate ploy to cause a gross over or under estimate of Soviet capability. It must be remembered, however, that the Soviet Army is an extremely large one, and there must be a medium of communicating ideas and concepts among their professionals.

These ideas and concepts could be put forth as classified documents but for what purpose? They could only be discussed by those with or in a need-to-know situation. Publishing of primarily tactical doctrine or opinions or summarizations of operation techniques in professional Soviet journals provides wide dissemination and corresponding wide information sharing and concept development. For this reason they will be considered.

The information from these translations will be compared with official U.S. publication's information as much as feasible. The information will also be corroborated with analyst appraisals in as many cases as possible. This paper will deal primarily with maintenance operations. It will address the doctrine, organization, and operations used to perform this maintenance. This paper will not, however, address the question of parts resupply. The resupply of parts is related to resupply techniques in general for the Soviet Army. To give a complete understanding of parts resupply would require a complete presentation on the doctrine, organization, and operation of the Soviet resupply system. Such a presentation is beyond the scope of this paper.

The final limitation in this paper, as in two other papers which have preceded it, is that of retracing contributions of other authors on Soviet logistics and maintenance. The effort of this author will be to combine as much information from as many sources as possible to provide a detailed, comprehensive coverage of the topic. The intent is not to simply reiterate what others have presented but to combine as many different aspects as possible to reach the desired goal of a comprehensive insight into Soviet maintenance. This approach is necessary since it is almost impossible to get primary source material in the form of technical

manuals and regulations from the Soviet Army. This is particularly true as a result of their security classification and our security classifications on such documents.



## CHAPTER II

### RESEARCH BACKGROUND INFORMATION

Section 1. Introductory Remarks: Today in the officer advanced courses in the combat arms branch schools, there is an increasing amount of attention being given to the Soviet Soldier, the Soviet Army, equipment, and tactics. The instruction primarily is geared toward the tactical-operational aspects of threat forces. There is little attention given to the logistical, supporting aspects of the Soviet forces. This deprives the student officer of the opportunity of a full understanding of a possible adversary's strength and weaknesses. It is the purpose of this paper to provide this view in the hopes that it will be a source of information for rounding out one's knowledge of the Soviet Army.

This background information is given to show what the USSR has in the way of natural resources to support an army the size of the Soviet Army. It also will cover the historical development of the Soviet Army from the Second World War to the present. This will be a brief survey of military history to give the reader a perspective of what has occurred and the influences these events exert on the present. Though the emphasis of the paper is on logistical operations, this introduction will briefly discuss Soviet tactical doctrine. It is essential to the comprehension of the logistical concepts to understand the framework of the tactical action which is the driving force in Soviet operations. This framework is likewise the impetus for Soviet maintenance organization and performance. Finally, this presentation of background information will discuss the

basic organization of the Soviet Army down to the level of the motorized rifle battalion. This will give the reader an appreciation of the number of elements requiring support and the chain of command which is controlling that support.

With the completion of this presentation, it is hoped that the reader will be able to understand the forces which drive the Soviet's logistical effort and be able to appreciate the impact of the discussion of the logistical systems which will follow in later chapters.

Section 2. Soviet Geo - Resource Data: The USSR is the largest nation in the world. Its area is over eight and one-half million square miles. The nation is 5,500 miles wide and 2,750 miles in length from north to south. The USSR is one-sixth of the total land mass of the earth.<sup>1</sup> This body of land has regions of tundra, leafy forest, desert, taiga (a forest south of a tundra), dry steppe, prairie areas, subtropical forest, and fertile steppe.

The Soviet Union's greatest land mass is dominated by a relatively flat plain that runs from the country's western borders to the Ural Mountains in the central portion of the country. To the north, one-seventh of the Soviet Union is covered by tundras. The steppes are found between the Urals and Altai Mountain Range in Asian USSR. In the southern and eastern portions of the USSR, immense desert regions can be found. In southeastern Russia, there are broadleaf forests and grazing meadows.

The major rivers west of the Ural Mountains are the Dnieper, Don,

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<sup>1</sup>Samuel L. Sharp, "The Soviet Union and Eastern Europe 1976," The World Today Series, (Washington, D.C.: Stryher-Post Publications, Inc., 1976), pp. 4-5.

and Volga. These have been used extensively for commerce. They have also been a source of consternation for invading armies. In the east, the River Ob, Lena, and the Yenisey are the dominating tributaries. The Ob is a major feature around which Siberia Russia has developed.

The weather in Russia is predominately cold and windy in the far north. In the Mediterranean regions in the southwest, the climate is subtropical. The climate is arid in southeastern Russia. In the temperate latitudes, the climate is very similar to that of Europe. During winter months the nation is dominated by extremely cold weather. This weather causes extremes of temperatures from very high in the summer to temperatures of  $-90^{\circ}\text{F}$ <sup>3</sup> in the winter.<sup>2</sup>

The USSR has an extensive road net. The problem with this road net is that less than 8 percent is paved. There are no paved roads linking European Russia with Asian Russia. There are six all-weather roads linking Soviet Industrial regions in the west with Eastern Europe. As a result of this limited road network, most bulk transportation is by rail and most vehicles are designed to be "cross-country" vehicles.<sup>4</sup>

In conjunction with the extensive road network, the Soviet Union has an equally well developed rail network. This network links the east and western portions of the nation with the Trans-Siberian Railway. This single link is soon to be supplemented by a railway in the northern portion of the nation.

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<sup>2</sup>Ibid., p. 4.

<sup>3</sup>Ibid., p. 5.

<sup>4</sup>Brigadier Shelford Bidwell, "Current Objectives and Political Strategy," The Soviet War Machine, ed. Ray Bonds, (London: Salamander Books, 1976), p. 50.

The emphasis in the Soviet Union is on productivity. This emphasis is on agricultural products and natural resources as well as manufactured goods. With little more than 15 percent of the land mass suitable for farming, production of crops is at times difficult. The Soviets have attempted to develop new regions for crops and also use new and innovative practices in presently cultivated areas.<sup>5</sup> The success of these activities is limited as seen by recent grain sales from the United States.

Natural resources may be limited in regard to agriculture, but there are few limits in other resources. The Soviet Union is said to possess 20 percent of the world's coal and lignite, or enough to last for almost 2000 years. The USSR is third in production of oil. It is estimated that this supply is sufficient to last for 60 to 100 years assuming no new finds are made. The amount of uranium available is a closely guarded secret, but it is estimated that the Russians have enough to meet their present and future needs. Finally, in the area of ferrous materials, the USSR has abundant supplies of rich, 68 percent, iron ore. In nonferrous metals, it is the largest producer of manganese and chromium. Russia is rich in lead, zinc, nickel, titanium and vanadium. They are short on cobalt, molybdenum, and tungsten, all of which are used in the production of steel. There is sufficient aluminum ore to last for at least 40 years. The Soviets are extremely rich in gold and tin. They rank high in the amounts produced or mined in the world. The last major resource which the Soviets use to a maximum degree is their water power. They have

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<sup>5</sup>Sharp, p. 45.

75,000 miles of navigable waterways and extensive, large hydro-electric power networks.<sup>6</sup>

The most valued resource of the Soviet Union is its people. There are almost 241.7 million people in the nation (1970 census).<sup>7</sup> These people have a talent for resourcefulness and industry. This is seen most graphically in their development from being virtually nothing to being one of the most powerful nations in the world.

"His qualities are as unusual and many-sided as those of his vast and rambling country. He is patient and enduring beyond imagination, incredibly brave and courageous--yet at times he can be a contemptible coward . . . . He disregards accepted tactical principles but sticks to the letter of his field manuals. He is essentially a primitive being, innately courageous, and dominated by certain emotions and instincts."<sup>8</sup>

In essence, he is a human being and he isn't eight feet tall. One key point about him is his patriotism. He is fanatical in his love for "Mother Russia." This has driven and will continue to drive his every action.

This discussion of the Soviet geo-resource data sets the stage for the further development of the topic of resupply for the motorized rifle battalion. The weaknesses and strengths of this geo-resource base form a reference frame for understanding certain impacts of doctrine, organization, and operation.

Section 3. Soviet Military Historical Development: In understanding the Soviet logistics system, it is necessary to understand the evolution

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<sup>6</sup>Ibid., pp. 45-46.

<sup>7</sup>Ibid., p. 4.

<sup>8</sup>Maj Gen. F. W. Von Mellenthin, Panzer Battles, (Norman, Okla.: University of Oklahoma Press, 1956), p. 293.

of the Soviet military which must be supported by this logistics system. In this effort, this paper will consider only the high points of that development. In coverage, the base point of interest is the end of the Second World War. The end of the war was the high point in Soviet numerical strength. It was also the base line from which the Soviets developed their modern system.

The end of the Second World War saw Joseph Stalin at the zenith of his power. It saw the Soviet Army demobilizing, restructuring, and reorganizing. It was the intention of the leaders at that time to develop a buffer zone between the West and USSR for protection. During this time frame, the emphasis on mobility and mechanization became an important goal. This goal setting was the result of Soviet success in the Second World War. In conjunction with this mechanization, went an emphasis on a tank heavy force. During this period, Stalin insisted on a build-up and modernization of existing forces. The emphasis was to maintain a force strong enough to "keep Europe hostage" since the Soviets lacked a strategic nuclear capability.<sup>9</sup> With this modernization, the Soviet Army correspondingly had to mechanize its resupply capabilities. The requirements for fuel and ammunition increased but, most importantly, the ability to maintain units operating independently rather than purely enmasse increased. To meet some of these problems head-on, the Soviets established the High Command of Rearward Services in the Ministry of Defense.<sup>10</sup> This

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<sup>9</sup>William R. Hotze and Terry L. Schott, "Soviet Logistics, How Good Is It?" Army Logistician (March-April 1976), p. 18.

<sup>10</sup>LTC Hans Hinricks, "The Supply System of the Soviet Army," The Red Army, ed. Basil Henry Liddell Hart (New York: Harcourt, Brace and Company, 1956), p. 285.

office was to coordinate and be responsible for coordination and control for future logistics developments and operations.

Following the death of Stalin, the development of Soviet military mechanization and modernization took a marked step forward. Marshal Zhukov became head of the Soviet Army. During his tenure, the Russian Army saw the development of the motorized rifle division and a separate heavy tank regiment. He was instrumental in starting to replace anti-aircraft guns with missiles. During this period, repeated emphasis was on maintaining the offensive and keeping the initiative.<sup>11</sup> To do these tasks, Soviet logistics continued to develop and become more responsive to long mechanized moves.

These efforts for both army and logistics developments declined somewhat during the era of Khrushchev. During this time, more emphasis was placed on strategic capabilities.

Following Khrushchev's departure in the mid-sixties, the Soviet Army began the development which has brought it to today's stature. During that period, the line of thought which was pursued was one which has emphasized the capability to operate in a theater of operation and to operate with high speed and high intensity.<sup>12</sup> The emphasis in logistics was shifted to a centrally controlled and operated system. This allowed the maintenance of shock power to the units in need. This has been accomplished by means of placing primary control of logistics functions to a major sized unit, and let it send the support and supplies where needed. This concept was

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<sup>11</sup>Erickson, p. 124.

<sup>12</sup>Ibid., p. 125.

further developed for the purpose of reducing the logistics tail so as to provide a greater number of combat units. These new concepts have been seen most effectively in Czechoslovakia in 1968 and the massive training exercises at Dnieper in '67 and Dvina 1972.<sup>13</sup>

The important idea to be derived from this very brief review of historical development of the Soviet Army since World War II is the idea of mechanization. The emphasis has been on more and more mechanization. The logistics systems have become smaller, more centralized and obviously more effective (if not, they wouldn't be able to make the moves or advances they have). Some analysts may say that the Soviet Army is still backward in logistics and it is their "Achilles Heel," but this is a questionable assertion when reflected against the historical developments in the Soviet Army.

Section 4. Soviet Military Doctrine and Organization: Soviet doctrine and organization are important to an understanding of the logistical support of a motorized rifle battalion. Without knowing what a Soviet Army does or how it is organized, it is difficult to understand how it is kept maintained and by whom.

Present Soviet tactical doctrine follows a concept which is called the Dual-Capability Concept. This doctrine emphasizes the ability of the army to use both nuclear and conventional weapons simultaneously. This use of nuclear weapons is not in the strategic sense but to enhance and maintain rapid tactical movement.<sup>14</sup> As a result of such a doctrine

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<sup>13</sup>Ibid., p. 125.

<sup>14</sup>Ibid., p. 120.



and awareness of similar countermeasures being inflicted on themselves, the Soviets have trained and organized for quick movement. Their concern is to mass quickly, close with the enemy to prevent his use of nuclear weapons, breach this enemy and drive deep.<sup>15</sup> The idea is that he who acts most aggressively and takes the decisive initiative, will win.<sup>16</sup> The logistical corollary to these ideas is the ability to move, mass, and continue to support such an operation while keeping a keen awareness of potential nuclear interdiction or operation in contaminated areas. This will require an efficient system of transportation and equally efficient system to determine or predict the requirements of ammunition and fuel and correspondingly bring them forward.

How has the Soviet Army structured itself to meet this doctrine? The Soviet Army is structured in wartime, with Fronts which are the equivalent to an American Army Group.<sup>17</sup> In these units are found what the Russians call the Combined Arms Armies (CAA) and Tank Army (TA). Each Front is authorized three Combined Arms Armies and one Tank Army. The Front will normally operate over an approximate 200 to 250 KM frontage and will set as its objectives, points which are approximately 500 to 550 KM distant.<sup>18</sup> (It is important at this point to consider that the distance

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<sup>15</sup>William R. Van Cleave, "Soviet Doctrine and Strategy: A Developing American View," The Future of Soviet Military Power, ed. Lawrence L. Whetten (New York: Crane, Russak & Company, Inc., 1976), p. 60.

<sup>16</sup>Erickson, p. 135.

<sup>17</sup>United States Army Intelligence Analysis Detachment Report Number 14-W-76, U.S. Army Intelligence Threat Analysis Detachment (Washington, D.C.: Government Printing Office, 1976), p. 83.

<sup>18</sup>Ibid., p. 85.

from Fulda to Kaiserslautern or Ramstein Air Base is only 250 KM, and the distance to the French border at Strasbourg from Hof, West Germany only 470 KM.)<sup>19</sup>

The CAA is usually composed of three Motorized Rifle Divisions and one Tank Division.<sup>20</sup> Of particular interest is the fact that the CAA will operate on a frontage of 60 to 70 KM.<sup>21</sup> The CAA is organized with three Motorized Rifle Divisions while the TA has three Tank Divisions and one Motorized Rifle Division.<sup>22</sup> One important feature of the TA is that it is normally held in reserve on a breakthrough attack. When it moves in the breakthrough, it will only move along a 20 KM frontage. The motorized rifle division is made up of three motorized rifle regiments, a tank regiment and an independent tank battalion. The regiment is organized with three motorized rifle battalions and a tank battalion. The typical battalion, of which we are concerned, has three motorized rifle companies. The average battalion will operate on an approximate 5 KM front.<sup>23</sup> The massive number of vehicles that compose these units is graphically seen in the following table.

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<sup>19</sup>Taschen-Atlas, Deutschland, ed. Karl Thiernig (Munich: Esso Oil Co., 1965), p. 65.

<sup>20</sup>USAITAD, p. 85.

<sup>21</sup>Ibid., p. 85.

<sup>22</sup>U.S. Army Armor School, Command and Staff Dept., Motorized Rifle Division Organizational Chart (Ft. Knox, KY: Armor School Print Plant, 1976).

<sup>23</sup>USAITAD, p. 85.

Type of Vehicle	BN	Regiment	Div	CAA	TA <sup>24</sup>
BMP (Tank-Like APC)	31	95	205	855	190
Tank (T62 or T72)		40	225	1000	1475

The Soviet Army has contrived a set of very simple tactics which maximize its numerical strength (which in East Germany, alone today, are 10 Tank Divisions and 9 Motorized Rifle Divisions).<sup>25</sup> These tactics are, basically, the same at all levels of organization. He will attack if possible, defend only when necessary, and withdraw only to attack elsewhere. We are, particularly, concerned with his offensive maneuvers. He will attack from a march column, initially. He will attack with a deliberate, planned attack if the position being attacked is known and prepared for an attack. The attack is conducted with forces moving in two echelons with the second acting as a reserve. In the case of a Front, a Tank Army is the reserve.<sup>26</sup> At the same time, paratroops will strike up to 300 KM beyond the FEBA to disrupt support forces or key installation. The final "trick" in the Soviet tactical "bag of tricks" is the use of massive artillery fires on or beyond an objective.

Section 5. Soviet Combat Service Support Operations. The tactical doctrine is supported by a corresponding doctrine and system for combat

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<sup>24</sup>U.S. Army Armor School, Command and Staff Dept., Motorized Rifle Division Organizational Chart (Ft. Knox., KY: Armor School Print Plant, 1976).

<sup>25</sup>Bidwell, p. 238.

<sup>26</sup>USAITAD, p. 13, para. 1-14.

service support operations. This system is characterized by a significant structure and discipline. (See Table 2-1)

The Minister of Defense is the overall head of the Soviet logistics system. To carry out the functions of logistics, the Minister of Defense has subordinate to him the Chief of the Directorate of the Rear Services. This director is responsible for procurement, management of rear area installations, movement of supplies in the rear area, traffic control in the rear area, rear area security and damage control for all civil affairs operations.<sup>27</sup>

In every command above battalion level, there is a position titled Chief Directorate of Rear Services. The individual in this position is also considered Deputy Commander of Rear.<sup>28</sup> In the Soviet Army the Rear refers to that area which is behind the forward edge of the battlefield and those combat forces on the edge itself. This rear will become correspondingly large as the level of command increases.

The Minister of Defense is also assisted by subordinate Technical Directors. These directorates are responsible for Artillery, Tank and Motor Vehicle supply, development, and maintenance.

A unique characteristic to the Soviet logistics system is their concept of Dual Control. The Chief Directorate of Rear Services at the Ministry of Defense exerts an influence to the lowest ranks. At lower

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<sup>27</sup>Handbook-Soviet Logistics, Threats Division, Concepts and Force Design Directorate (Ft. Leavenworth, KS: U.S. Army Combined Arms Combat Developments Activity, 1977), p. 2-1.

<sup>28</sup>Ibid., p. 2-1.

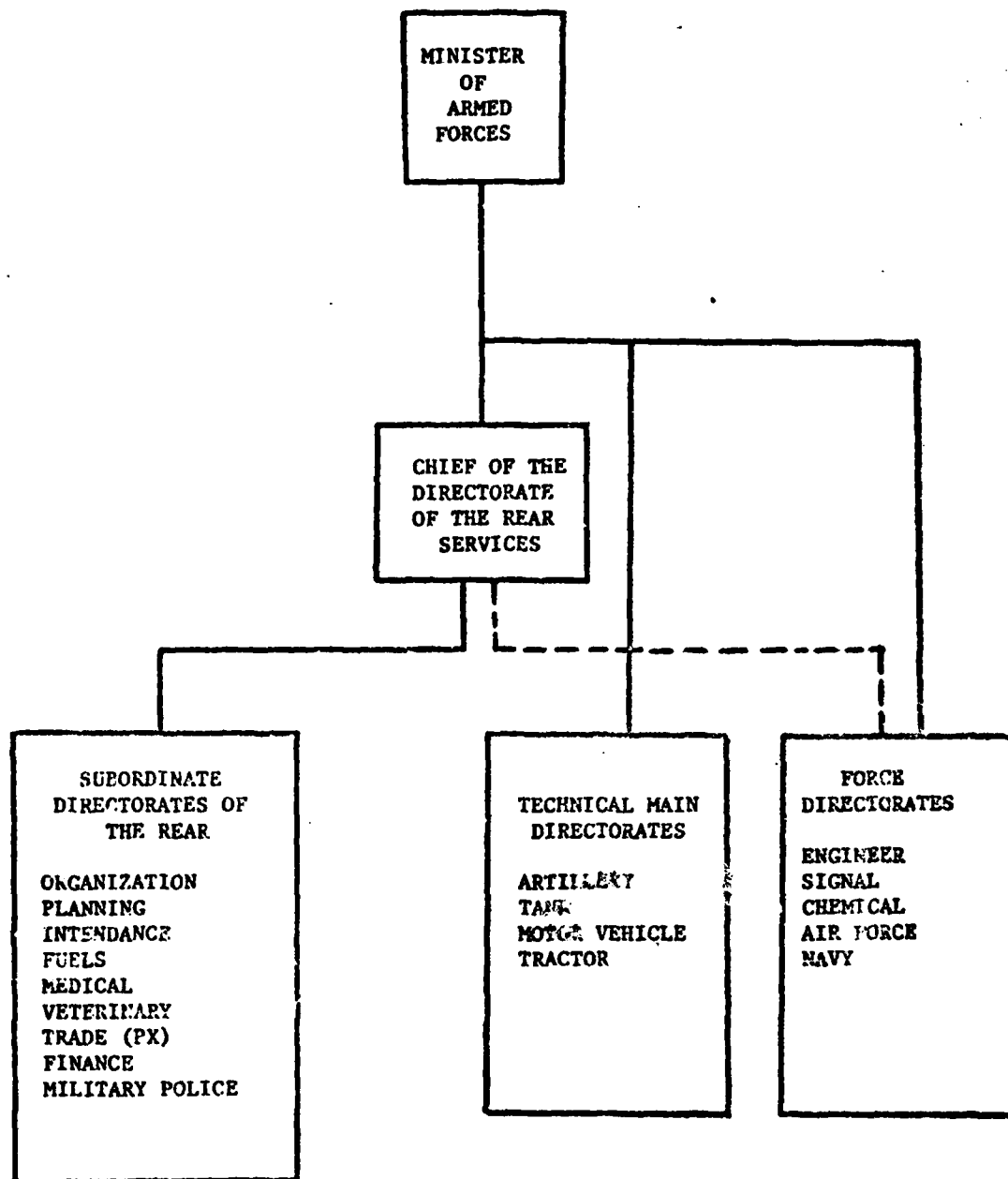


TABLE 2-1

commands, the Chiefs of Rear are operationally controlled by their unit commanders. These Chiefs are also subordinate to higher level Directorates in regard to technical and administrative activities.<sup>29</sup> This dual control allows a consistent control and implementation of policy on logistics matters from Minister of Defense to the lowest levels of logistics support.

The organization of the logistics support effort at the battalion level is the responsibility of the battalion commander. He is assisted in this task by the deputy battalion commander for technical affairs and the supply platoon leader.<sup>30</sup> The functions of these individuals will be covered in greater detail later.

The final link in the logistics chain is the recipient, the line company. The motorized rifle company has no specific organization which is required to handle, or authorized to handle, logistics support for the company. The unit commander organizes and handles the logistics requirements of his unit through the assistance of the company deputy commander for technical matters, the first sergeant, and the platoon leaders. The first sergeant sees to supply of food, fuel, ammunition and weapons while the deputy commander sees to maintenance. The platoon leaders function as do platoon leaders in the United States Army. They are responsible for the combat readiness of all members of the platoon and their equipment.<sup>31</sup>

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<sup>29</sup>Ibid., p. 2-1.

<sup>30</sup>John J. Sosnowski. "Soviet Logistics," 10 November 1977, A Research Paper For SM 5062, Florida Institute of Technology, Melbourne, Fla., p. 22.

<sup>31</sup>Ibid., pp. 22-23.

These organizations are designed in a uniform manner for the sake of simplicity and efficient, controlled response. In conjunction with this organization, the Soviet Army has developed a set of principles for logistics operations. These principles have been influenced to a great degree by the wartime experiences of the Russian Army. They have also been influenced by the geo-resources discussed earlier. Finally, the principles of logistics have been influenced by the development of mechanization in the Soviet Army.

The logistics concepts of the Soviet Army are designed to work with the minimum essentials. The emphasis is on being able to support sustained operations over long distances. The organizations and efforts and equipment are geared to meet this principal tenet. In doing this, the Soviets have emphasized large stockage points well forward.<sup>32</sup>

The military logistics commanders place great stock in long term plans. These plans are carefully coordinated with the civilian ministries of supply for meeting requirements well ahead of the anticipated time required. The organizations and procedures for meeting the plans are tested and exercised to insure their effectiveness. A good example of this principle has been seen most recently during the mass field exercises the Soviets have conducted.<sup>33</sup>

The Soviet military strongly follows the concept of standardization. This simplifies their resupply and battlefield recovery. There are several

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<sup>32</sup>Force Design Directorate, p. 2-3.

<sup>33</sup>Ibid., p. 2-3.

examples of this standardization. One of the most evident cases is the use of a light tank chassis, the PT-76. Its chassis has been used in personnel carriers, rocket launchers and, most recently, for the self-propelled artillery. The drawback to this concept is the fact that the Soviets never or seldom phase out of the inventory any equipment. There are many families of equipment still in existence today, and they all require spare parts. This variety becomes a difficult inventory to manage.<sup>34</sup>

A key, if not the most important principle, in Soviet logistics is their priority of supply delivery. This priority rule is rigidly adhered to. Experience from the Second World War indicates that this priority of resupply is followed no matter what happens. In resupply and all efforts involved in the resupply effort, missiles receive first emphasis. Resupply of ammunition is next, followed by POL products. The last item of importance is the resupply of rations.<sup>35</sup>

The idea of placing rations low in a listing of priorities is unusual to the U.S. military. The Soviets' standard of living is much lower than the average in the United States. The people of the USSR are accustomed to inadequate clothing, simple food, and few, if any, luxuries. They expect no special attention and get little in the Army. This frees transportation, procurement, and resupply assets to turn their effort toward ammunition, fuel, and weapons.<sup>36</sup>

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<sup>34</sup>Sosnowski, p. 25.

<sup>35</sup>Ibid.

<sup>36</sup>Ibid.



The emphasis in the Soviet Army on distribution is on what is called "distribution forward." By this principle, the higher echelon will have the responsibility to resupply and assist in the maintenance of the next lower unit or in some cases two or even three echelons lower. This is particularly true in ammunition resupply where Front will distribute ammunition directly to firing batteries.

This principle of delivery forward is directly related to the earlier discussed concept of centralized control of logistics. Through delivery forward, units that are being put into battle or in an offensive are being directly supported by the same organization that is directing their employment. This allows units with the most pressing need to receive the support.

The Soviet military places particular emphasis on personnel accountability for supplies and equipment. This principle is key to their ability to use equipment for many years. This principle is fostered by Soviet frugality as a national trait.

The idea of accounting for supplies and concern for supply discipline is the basis for Soviet interest in use of captured equipment, stores, and resources. Special organizations and contingencies are prepared to handle just such occurrences when plans for an operation are prepared. This was particularly true in the Second World War, and it is carried on today.<sup>37</sup>

The final principle upon which the Soviets place particular emphasis is the use of railroads for transportation. Since the road network is not

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<sup>37</sup>Hinricks, p. 277.

predominantly all-weather, the Soviet Army depends a great deal on its rail network to keep itself supplied.<sup>38</sup> It is not uncommon for plans to include resupply of armies and even regiments by rail.

Thus, we see a tactical doctrine of offense being supported by a doctrine of logistics which emphasizes efficiency and no frills.

In the following chapter, we shall take an in depth view of one aspect of Soviet logistics. We shall see how, at unit level, Soviet maintenance is organized, how it operates, and what doctrine governs this organization and operation.

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<sup>38</sup>Force Design Directorate, p. 2-3.

### CHAPTER III

#### MAINTENANCE SUPPORT FOR A MOTORIZED RIFLE BATTALION

##### General Information on Soviet Maintenance:

Soviet logistics has come of age. In the years up to the Second World War and immediately following the war, the majority of defense analysts took the point of view that the major weakness of the Soviet Army was its logistics tail. Repeatedly, comments were made that Soviets could neither supply nor maintain themselves. Recently, the world has most graphically seen the Soviets develop one of the most highly mobile, mechanized forces in the world. Some analysts still maintain that the Soviets can't keep this force operational. They say that the Soviet emphasis is on the procurement of the weapon systems and not on the maintenance of them during their life cycle. These analysts claim that Soviet maintenance organization and operation is too austere to meet the demands placed on it by Soviet operational forces.

In examining Soviet maintenance, it must be remembered that the nature of their equipment has become more complex and sophisticated than ever before. The Soviet T-72 tank uses a laser range finding system. The Soviet ZSU-23-4, air defense weapon system use a highly sophisticated radar guidance system.<sup>1</sup>

These are but a few of the innovations introduced to the Soviet Army.

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<sup>1</sup>Ray Bond, ed., The Soviet War Machine (London: Salamandar Books, 1976), pp. 178 and 189.

The Soviets feel it is important to increase the scope of preventative maintenance activities and repair responsibilities at all levels of command to support these innovations.<sup>2</sup>

The Soviets, in developing their forces, have placed a considerable amount of credence on the lessons learned in the "Great Patriotic War," WWII. Repeatedly, they compare actions of the past to today's operations. The Soviets confirm their comparisons by actions such as Hungary, Czechoslovakia, and the numerous training exercises they conduct.

In this regard, they cite the fact that during WWII, on one day of an attack, 30 to 50 percent of the tanks participating in the attack suffered a mechanical failure. The Soviets attribute 1 to 2 percent of the failures to before-action, operational causes. They indicate the 2 or 3 percent of the day's losses were the result of combat action.<sup>3</sup>

The Soviets further feel that 50 percent of their losses were the result of minor problems. The remaining non-operational equipment was classified as either requiring medium repair assistance or being destroyed as a result of enemy action.<sup>4</sup> From their analysis of after-action studies the Soviets feel that in combat, at the battalion level, repairs were either component repair, replacement, adjustment, or similar small operations. They also feel that these statistics will increase in a future conflict, particularly if it is a nuclear one.<sup>5</sup>

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<sup>2</sup>I. G. Kamayshanov, I. I. Kushch, and I. V. Griбанov, Rear Service Support for Subunits in Combat (Moscow: Ministry of Defense, 1973), p. 104.

<sup>3</sup>Ibid., p. 110.

<sup>4</sup>Ibid., p. 110.

<sup>5</sup>Ibid., p. 110.

To handle these problems, the Soviets have put considerable emphasis on the volume of work performed by vehicle crews and maintenance personnel. They feel that equipment readiness and the respective means to accomplish this readiness is particularly important to overcoming all pre-combat and some combat losses. In meeting this goal of readiness, the Soviets attach considerable emphasis to preventative maintenance and establishing proper conditions for the upkeep and repair of equipment.<sup>6</sup>

Finally, the Soviets are following a policy of depth forward in their organization of service support activities. This concept has maintenance support forward with units committed to the fighting and also from their parent regiment, division, and Front level units.

This chapter will examine Soviet maintenance. It will not attempt to compare the Soviet maintenance system with that of the United States or other NATO armies. This chapter will cover the principles, organization, and techniques of operation that guide Soviet maintenance practices.

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<sup>6</sup>A. Iranov, "Servicing Armor" Technology and Armament (June 1974), p. 16.

## PART I.

### DOCTRINE FOR MAINTENANCE IN THE SOVIET ARMY

#### Section 1. General Information:

When the average analyst considers Soviet maintenance, he is usually interested in finding answers to broad questions. In understanding the broad answers he will receive, he must understand the basic principles which govern the operations and performance of Soviet maintenance. This part of Chapter III will look at some of the major principles the analyst should understand and appreciate.

#### Section 2. Principles of Soviet Maintenance:

Forward Support. The Soviet system of logistics emphasizes the concept of forward support. This concept is the cornerstone to their tactical success. In maintenance, the concept is no less important. The Soviet war machine is highly mechanized and formed on a concept of unit, not individual, replacement. In the event of an attack or defense situation, large numbers of forces are massed together. If there is a maintenance problem in a unit, the unit continues to operate until it is no longer effective, and then, it is entirely replaced. To keep these units effective for a maximum period of time and likewise sustain the high speed rates of advance, repair of equipment must take place forward. Hence, the Soviets emphasize forward repair.

The majority of forward units have limited repair capability. The units of higher headquarters are geared to providing the needed support to

forward units. This is particularly true of Front level units whose mission is to support subordinate units in contact as a result of Front's operational plans.<sup>7</sup>

Operator/Crew Maintenance. The Soviet military is becoming more aware of the benefits to be derived from proper, effective user maintenance. Considerable emphasis is placed on operator/crew checks and service. Crews are expected to remain with their equipment even if it means going with it to the highest levels of maintenance.<sup>8</sup>

Conservation and Accountability. The Soviets aren't simply interested in the environment when they say conservation. To them, this work means careful, prudent, and authorized use of equipment. The individual is made both financially and duty bound to care for equipment entrusted to him. He either pays with money or time in service for any convicted act of negligence in equipment abuse or misuse. The Soviets expect an item to be in service for as long as possible. They aren't concerned with depreciated values or provision for scrap metal support. To aid in conservation, the Soviets adhere to a program of using only a minimum of equipment in regular training. The remainder is stored and maintained in administrative storage. This move saves not only money but the life of the equipment as well.<sup>9</sup>

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<sup>7</sup>Concepts and Force Design Directorate, Threats Division, Handbook Soviet Logistics (U.S.A. Combined Arms Combat Development Activity, 1977), p. 6-3, NOTE: Abbreviation will be CACDA.

<sup>8</sup>Ibid., p. 6-3.

<sup>9</sup>Ibid., p. 6-3.

Standardization. This is another key principle to the Soviets in their maintenance operations. It eases maintenance and training, provides economy in production, increases varieties of commodities that production equipment can produce, and increases inter-changeability of parts. This principle enhances forward maintenance operations since so many of these vehicles have the same parts and assemblies. These can be easily switched from like pieces of equipment. This provides a streamlined training requirement. Several examples of this principle are readily seen. On the two and one-half ton truck, 45 percent of its parts will fit on other trucks made in the same design, and 23 percent of the two and one-half ton truck's parts can be used on all other trucks in the same weight class. Still another example of this standardization is the use of the PT-76, light tank, chassis. This chassis is used on personnel carriers and missile launchers.<sup>10</sup>

Categories of Maintenance. The Soviets divide the work that needs to be performed on equipment into three categories. These are Routine, Medium, and Capital repairs. In so doing, they attempt to limit maintenance efforts to the appropriate level of expertise and capability of the individual or units doing the maintenance. These categories particularly enhance conservation and require emphasis on forward support.

a. Routine Repairs. In the routine category of maintenance, all unscheduled, operational maintenance requirements are grouped together. Maintenance in this category normally will include repair and replacement. The work is done by all levels of maintenance personnel below division level. This includes operators and crew.

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<sup>10</sup>Ibid., p. 6-3.



b. Medium Repairs. Medium repairs are, specifically, overhaul operations performed on at least two basic assemblies. While this work is being accomplished, all other assemblies are inspected and any minor adjustments, required, are made. The medium repair category of work is performed by regimental and divisional mechanics.

c. Capital Repairs. These are the repairs which involve the entire replacement or overhaul of the assemblies of a system. It is the most extensive and detailed repair performed by the Soviets. It is done by Front level units.<sup>11</sup>

Preventative and Technical Maintenance. To enhance its concept of conservation, the Soviet Army uses only 20 percent of its equipment while training. It moves tracked vehicles normally by rail or by truck for long haul moves. Most important, the Soviets emphasize the idea of Preventative Maintenance to conserve the life of their equipment.<sup>12</sup>

For the Soviets proper preventative maintenance is protection and care of equipment from damage caused by the operating environment. To the Soviets, proper utilization is simply proper use. Personnel and crews are key in this idea. The work they perform to correct, improve, or maintain their equipment is called technical maintenance.<sup>13</sup>

Preventative Maintenance Operations. The basic purpose of preventative maintenance is constant, technical preparedness, timely identification

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<sup>11</sup>Defense Intelligence Agency (DIA), Handbook on Soviet Armed Forces (Government Printing Office, 1969), p. 175.

<sup>12</sup>Ibid., p. 175.

<sup>13</sup>Kamyshanov, p. 106.

of deficiencies, and the elimination of those deficiencies noted on vehicles and other equipment. It consists of a planned, successive operation to care for the equipment. When to perform the operations is clearly specified on charts similar to Table 3-1.<sup>14</sup>

TABLE 3-1 TANK SERVICING SCHEDULE<sup>15</sup>

MAINTENANCE	FREQUENCY	PURPOSE	TIME ALLOCATED FOR MAINTENANCE
1	2	3	4
ROUTINE INSPECTION	PRIOR TO EACH MOVEMENT	CHECK READINESS FOR MOVEMENT	40 MIN.
PREVENTATIVE MAINT. NO. 1	AFTER DRIVING AND AT LEAST EVERY 100-150 KM	PREPARE FOR FURTHER OPERATION	4 HOURS
PREVENTATIVE MAINT. NO. 2	AFTER EVERY 1000 KM	THOROUGHLY CHECK FOR PROPER TECHNICAL CONDITION	6-7 HOURS
PREVENTATIVE MAINT. NO. 3	AFTER EVERY 2000 KM	PREPARE FOR FURTHER OPERATION	8-12 HOURS

As the sample chart indicates, considerable emphasis is given to various preventative maintenance operations. The tasks performed during these operations include fueling, servicing, minor maintenance, battery maintenance, and inspection for the presence of basic authorized vehicle tools and support equipment.

These preventative maintenance operations are the results of recommendations or guidance from two sources. The first source is the

<sup>14</sup>Kamyshanov, pp. 106-107.

<sup>15</sup>CACDA, p. 6-4.

factory. It prescribes which inspections and services, daily or periodic, should be performed and when. The other source of recommendations are monitoring inspections. These are regular inspections performed by key personnel before, during, and after operations. The time, people, and scope to be spent on the preventative maintenance and the corresponding inspections is established by the battalion commander. The deputy commander for technical matters will decide what exactly is done within the limits set by the battalion commander. He will do this based on his knowledge of the equipment's condition and what it has been through.

TABLE 3-2 TOPOGRAPHICAL COEFFICIENT<sup>16</sup>

	VALUE OF COEFFICIENT FOR MAP SCALE		
	1:50,000	1:160,000	1:200,000
Flat	1.00	1.00	1.05
Moderately Rugged	1.05	1.10	1.15
Very Rugged	1.15	1.20	1.25

TABLE 3-3 MANEUVERING COEFFICIENT<sup>17</sup>

CHARACTER OF COMBAT	VALUE OF MANEUVERING COEFFICIENT
Advance on enemy defenses at beginning of operation	2.5 - 3.0
Advance on enemy defenses in course of action	1.8 - 2.0
Meeting engagement	2.0 - 2.5
Pursuit of retreating enemy	1.4 - 1.6

<sup>16</sup>John T. Sosnowski, "Soviet Logistics" (Master Research Paper for SM 5062, Florida Institute of Technology, 1977), p. 51.

<sup>17</sup>Ibid., p. 51.

To aid the deputy commander in determining what the equipment has been through, he can use the topographical and maneuver coefficients. The deputy will compute the total coefficient value in accordance with the character of the forthcoming operation. He will order the servicing of the equipment according to the size of the coefficient and his estimate of vehicle condition. (See Tables 3-2 and 3-3.) The higher the coefficient, and the poorer the vehicle condition the more work is required.

Scheduling Preventative Maintenance. The preventative maintenance of equipment will be prioritized. First priority goes to all firing weapon systems. This will mean that all maintenance as prescribed by the respective preventative maintenance classifications will first be performed to enable a firing system to do its mission. Following this, the resupply of ammunition and servicing of the chassis will be attended to, in that order.<sup>18</sup>

In the scheduling of preventative maintenance services, emphasis is given to balance and reduction of idle time. If an operation is one which can be better performed by a group, a unit will be broken down into groups so all personnel are productively employed. This division of labor only goes as high as company level. To insure that a unit doesn't have the same system or sub-system in repair for all vehicles, disassembly or service of a particular system is done only on three vehicles at a time. In this manner, weapons, fuel systems, engine and starter, and transmission are not out of operation for the whole unit. Likewise, only

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<sup>18</sup>Kamyshanov, p. 107.

three vehicles are allowed to be non-operational as a result of servicing at a time in a combat environment.<sup>19</sup>

Summation. Thus, it can be seen from this discussion that to merely ask a broad question about Soviet maintenance will require due consideration of these principles for it to be meaningful. Likewise, to appreciate the broad answer to a question on Soviet maintenance, the proponent of the question should have some awareness and understanding of these principles of maintenance as used by the Soviets. In understanding them he can appreciate, more, what and why they do what they do.

### Section 3. Responsibilities for Soviet Maintenance:

General. A measure of combat capabilities for the Soviet Army is the number and quality of weapons in the units. The level of maintenance readiness and the corresponding quality of maintenance performed is equally important to the Soviet military.<sup>20</sup> This maintenance readiness is the responsibility of all commanders and directors for technical affairs as was discussed in Chapter I. Of particular importance in this discussion, is the role of the responsible persons from battalion and below.

The Battalion Commander. The basic maintenance responsibility for battalion and corresponding subunit leaders is to insure their equipment is ready for operation. This is accomplished by conservation, proper use, technical servicing, repair, and timely evacuation of equipment.

The battalion commander is the key man in this effort. From him, action is initiated, and the scope of what will be done is set. He is

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<sup>19</sup>Ibid., p. 104.

<sup>20</sup>Ibid., pp. 11-21.

required to know the status of his equipment at all times. The commander is expected to personally check the presence, organization, and effectiveness of preventive maintenance, of technical servicing, and repair of the equipment in his battalion.

The Chief of Staff. The battalion commander is assisted in the performance of his maintenance responsibility by the chief of staff and the deputy battalion commander for the technical section. The chief of staff must know the same things about the battalion's material readiness as does the commander. He must, furthermore, organize and locate those elements, organic or attached from a higher headquarters, that make up the battalion rear and provide maintenance support. The chief of staff must likewise keep the battalion commander advised of the dispositions and performance of maintenance units operating in the battalion area.

The Deputy Battalion Commander. The deputy battalion commander for technical affairs directly organizes the technical support in the battalion. He is directly responsible for the work performed by the maintenance sections to keep the equipment operationally ready. He carries out the guidance of the chief of staff and policies or directives set forth by the commander. The deputy also ensures all technical effort is coordinated, and that any units attached to the battalion are thoroughly utilized. He sees to the positioning and physical welfare of all technical sub-units. Finally, the most important function of the deputy is keeping the battalion commander and chief of staff informed as to the status of material readiness in the unit on a daily basis.

Additional Leaders. Assisting the deputy commander for technical affairs are the unit commanders, first sergeants, and, in some types of

units, the company deputy commander for technical affairs. The company commander has essentially the same duties as the battalion commander. His first sergeant is the key man in questions of maintenance readiness. The first sergeant is expected to issue, inspect, and receive all equipment that is used in unit operations. He keeps all maintenance records and sees that the equipment the commander wants put into maintenance is so disposed. The issue of maintenance supplies and keeping the commander informed of equipment status is also the responsibility of the first sergeant. In those cases where a company deputy commander is authorized, he will perform for the company the same duties as the battalion deputy commander for technical affairs performs.

The final key individual with particular maintenance responsibility is the platoon leader. He must inspect and insure that the required crew maintenance operations are properly performed. It is his obligation to know the status of his equipment and keep the company commander informed as to what that status is.

Crew Members. The discussion, so far, has covered the responsibilities of the key personnel in the battalion with regard to maintenance. These individuals have been primarily concerned with supervisory and organizational effectiveness responsibility. There is equal emphasis given in the Soviet military to the individual crewman's responsibilities. These responsibilities emphasize the conservation aspect of preventative maintenance. The responsibilities lie primarily with the vehicle commander and driver.

The vehicle commander is responsible to see to the overall management of vehicle maintenance. If the piece of equipment has a communications

capability, visual assistance devices, and fire fighting equipment, the commander is responsible for their proper operation and preventative maintenance. He is also responsible for assisting in maintaining the weapons and ammunition on vehicles that serve as weapons systems firing platforms.

The driver is responsible for maintenance on the power plant and power train. He is trained to perform limited maintenance tasks and in the case of a tank unit, he is called a driver-mechanic.

On vehicles which serve as weapons system firing platforms, i.e., tanks, recon vehicles, artillery pieces, the gunner and loader(s) have maintenance tasks to perform. The gunner is responsible for the maintenance of fire controls and sights. The loader assists all the other crewmen when his help is needed.<sup>21</sup>

Organizational Responsibility. The responsibility for the various maintenance functions is indicated by the different categories of maintenance. For specific details, refer to the earlier references to the subject.

#### Section 4. Training of Personnel for Soviet Maintenance.

Individual Training. The emphasis on training for maintenance is at the unit level. Since the new soldier inducted into the army will only be required to serve a two-year tour of duty, the time to train him is limited. The initial schooling will be primarily geared to giving him a basic skill and a knowledge of a second. In the case of tank drivers,

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<sup>21</sup>A. Porokhin, "Tank Servicing in the Vehicle Park" Soviet Military Review (November 1968), p. 25.



this means primary emphasis is on driving with additional schooling on maintenance.<sup>22</sup>

In the unit, the soldier will undergo further maintenance training. Here, the emphasis will be working as part of a crew and company. This training is characterized by an extensive use of training aids, actual mock-ups, operating displays, and models. The goal is to enable the individual to develop the skills in performing individual operations on the maintenance of assemblies, machine units, and machines. After the individual has mastered his tasks, the crews, together, work on complex practical exercises. Attention here is placed on an efficient team effort.<sup>23</sup>

Officer Training. In the case of officers, they will spend several years training in their specialty. This training includes technical proficiency with the equipment peculiar to their specialty. For most technical branches of services, an engineering background is a prerequisite. This further enables the officer to be more proficient. While in training, the officer also receives indoctrination in the peculiarities and technicalities of the Soviet maintenance systems. Thus, on his arrival in a unit, the Soviet officer is well versed in the operation of his equipment. His time spent as a platoon leader and company deputy for technical affairs gives him a practical perspective of maintenance and maintenance operations.<sup>24</sup>

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<sup>22</sup>Christopher Donnelly, "Military/Political Infrastructure," The Soviet War Machine, ed. Ray Bonds, (London: Salamandar Books, 1976), p. 38.

<sup>23</sup>A. Ivanov, "Servicing the Armor," Technology and Armament (June, 1974), p. 16.

<sup>24</sup>Donnelly, p. 40.

## PART II.

### ORGANIZATION FOR MAINTENANCE IN THE SOVIET ARMY

#### Section 1. General Information.

The Soviet military operations emphasis is on rapid, mass, mobile operations. They hope to use a principle of "support forward" in their logistics operations to maintain an initiative. This concept is applied to their maintenance operations also. To meet this principle, the Soviets have emphasized making all their maintenance operations mobile at all levels of command.

In their preparations, the Soviets acknowledge that the operations they expect to participate in will generate and entail a considerable workload.

"The organization of measures for technical support of the sub-units during preparation for and during the course of combat will depend on the volume of work, presence, and degree of preparedness of the forces and means necessary for it, the character of the combat operations, the presence of time and other conditions."<sup>25</sup>

To meet this volume of anticipated work, the Soviets have organized their resources to make maximum use of the time they expect to have available in getting the maximum amount of productive effort from their fighting units. To enhance this productivity, they have developed the concept where the higher levels of command will assist, extensively, subordinate units with maintenance support. This support will start with the Front

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<sup>25</sup>Kamyshanov, pp. 104-105.

level of command and go to that unit in greatest need as designated by the Front commander. Thus, a highly streamlined, centralized maintenance flow is generated with authority and control being derived from the man controlling the battle itself.<sup>26</sup>

In this section, there will be a detailed description of the organization for maintenance at all levels of command. (See Table 3-4.) There will be a description of Soviet concepts for maintenance organization on the battlefield. Finally, there will be a section which will outline the organization the Soviets have to process non-vehicular equipment that is damaged during the course of operations.

Section 2. Organization for Maintenance at all Levels of Command.

Front Maintenance Organization. At Front level, maintenance and repair units are capable of working either from a fixed station, or they can operate from a mobile operation.<sup>27</sup> Since the Front has a major role to play in logistical as well as maintenance support, it establishes extensive supply complexes. These are composed of branch maintenance depots, workshops, and other maintenance plants.<sup>28</sup> All plants and mobile repair units are equipped to perform capital repairs and some complete overhaul work.

Combined-Arms Army Maintenance Organization. The combined arms armies are specifically organized for their assigned missions. Their

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<sup>26</sup>CACDA, p. 8-3.

<sup>27</sup>Ibid., p. 6-5.

<sup>28</sup>U.S.A. Intelligence Threat Analysis Detachment (USATTAD), Military Operations of the Soviet Army, (Washington, D.C.: Government Printing Office, 1976), p. 81

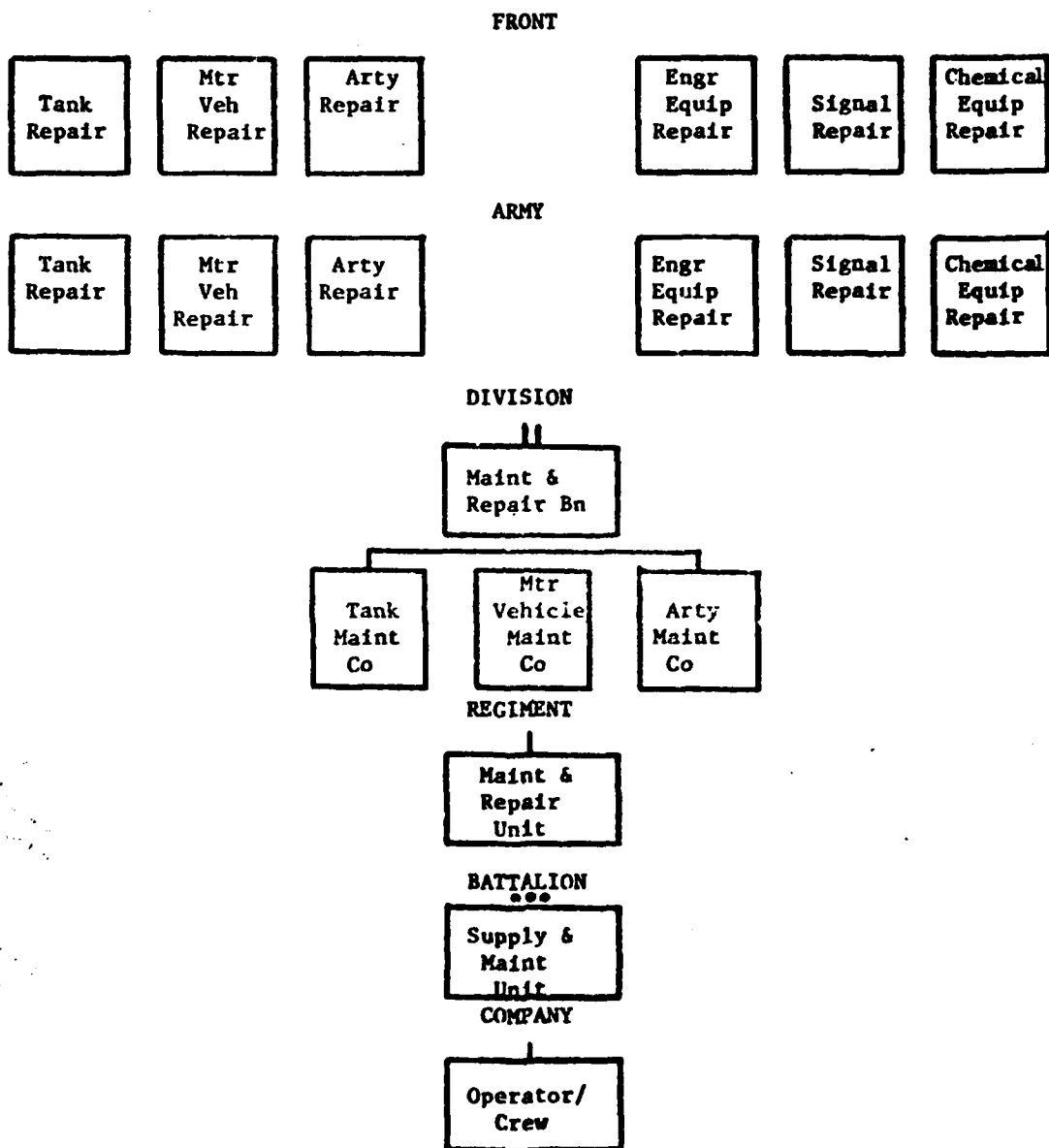


TABLE 3-4<sup>29</sup>

<sup>29</sup>CACDA, p. 6-5.

repair and maintenance assets are from Front level. Armies will, generally, have two or more tank and motor vehicle repair battalions, respectively.<sup>30</sup> Like the maintenance assets at Front, all maintenance support is capable of mobile forward support.<sup>31</sup> At army level, the units can and do perform capital repairs. The emphasis, however, is to provide forward support for routine and medium repairs.

Division Level Maintenance Organization. At division level, there is a maintenance and repair battalion. This battalion has separate motor vehicle and tank repair shops which operate out of vans. The battalion also has spare parts supply trucks and tank retrievers. Each battalion is composed of a motor vehicle maintenance company, and an artillery maintenance company.<sup>32</sup> These units each have at least 100 men. The motor vehicle and tank companies form vehicle collection points (SPPM).<sup>33</sup> All units in the battalion are able to perform their assigned mission forward and are mobile to get there. The main work level at division is of the medium category of repair.

Regimental Level Maintenance Organization. At regimental level, there is a maintenance and repair company. This unit is highly mobile. Its main purpose is to provide direct or backup assistance to the forward, subordinate, maneuver battalions. Regimental units do routine and medium repairs.<sup>34</sup>

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<sup>30</sup>USATTAD, p. 76.

<sup>31</sup>DIA, p. 176.

<sup>32</sup>Ibid., p. 175.

<sup>33</sup>CACDA, p. 6-6..

<sup>34</sup>USAITAD, p. 76 and CACDA, p. 6-6.

Motorized Rifle Battalion Level Maintenance Organization. The battalion supply and maintenance platoon is the focal as well as key support unit for mechanical readiness of Soviet forces. The unit is composed of small repair workshops. The purpose of these shops is to provide maintenance assistance, repairs, receipt, and storage of all repair parts. The units are mobile and operate out of shop trucks designated PARM-1 or PARM-3. In combat, these units comprise the recovery and evacuation group (REG). They are capable of performing routine repairs on wheel and track vehicles in a battalion.<sup>35</sup> As will be seen later in the section on operations, these units do all or most of the repair in the battalion. They even go so far as to do the inspections which are normally crew functions...

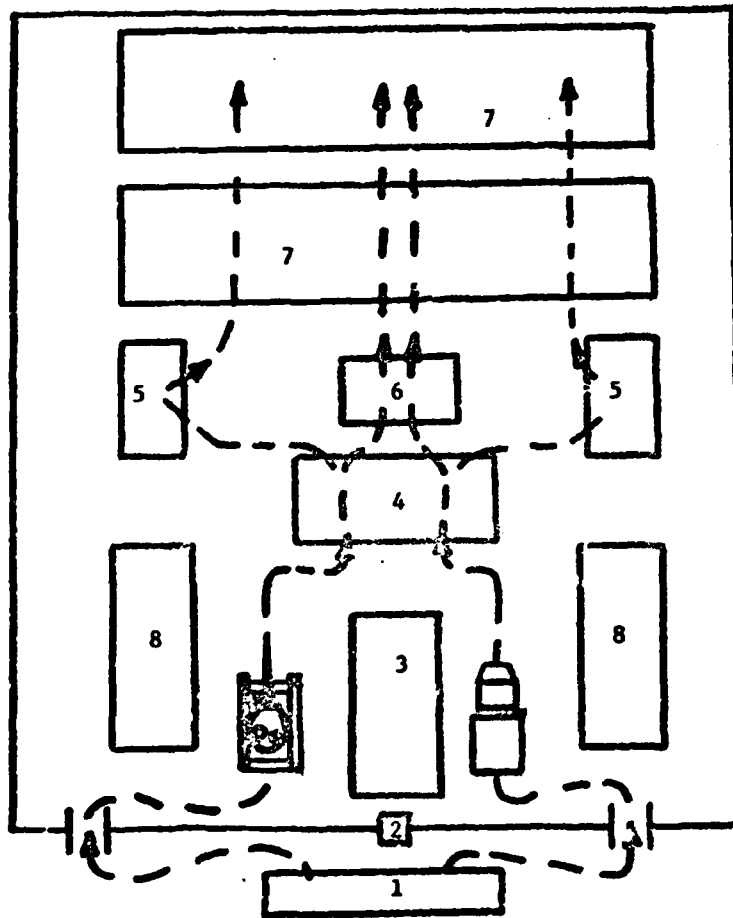
Section 3. Organization of the Maintenance Line. (See Fig. 3-1)

General. It is important to note the organization of a maintenance line since it is a uniform, mandatory layout. An understanding of its organization gives an insight into Soviet maintenance methods.

Motorpool Layout. The layout of a motorpool as far as functions performed is prescribed and uniform in nature. The organization is such that it enhances control over all maintenance operations conducted there. The first station in the motorpool is the preliminary vehicle inspection station. Here, the vehicle is inspected by the deputy commander for technical affairs. It then moves to the fueling, washing, and preventative maintenance points for undergoing the respective functions. In the event routine repairs are required, the vehicle moves next to the "service

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<sup>35</sup>DIA, p. 175.



# INDEX

1. Preliminary cleaning point
2. Inspection point
3. Refueling point
4. Washing point
5. Preventative maintenance point
6. Repair Shop
7. Parking area
8. Departure inspection point

FIGURE 3-1<sup>36</sup>

station." The final station in a motorpool is the inspection station. Here, vehicles are checked for proper maintenance and are then authorized to park. This motorpool organization is maintained both in garrison and the field, when terrain and combat conditions permit. In either case, it is specified that this maintenance area is equipped or provided with electricity, water, and tools. It is interesting to note that the washing point is a mechanical operation with a back-up system. The Soviets also specify that a heating unit is provided for water and air during the cold weather operations.

In a garrison situation, the maintenance point is required to have exhaust outlets, traps, cranes, and inspection racks. It is also recommended in Soviet regulations that these areas be inclosed and heated to improve the quality of the work.<sup>37</sup>

#### Section 4. Organization of the Maintenance Effort for Combat.

General. The Soviet maintenance effort in combat takes place in the immediate rear areas of forces in action. The maintenance effort is coordinated from a control center called a technical observation point (TOP). If maintenance assistance is required, a unit called a repair and evacuation group (REG) will be used to perform the operation. In this section, we will look at these two organizations in detail to see their effect on the organization of the Soviet maintenance effort for combat.

The Technical Observation Point. The technical observation point is established under the authority and guidance of the battalion

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<sup>37</sup>Ivanov, pp. 17-18, and Porokhin, pp. 24-25.



commander. It is organized in an armored personnel carrier equipped with radios and night vision devices. The TOP is manned by the deputy battalion commander for technical matters, who is in charge, a deputy commander for technical matters from the companies, armored vehicle operators, and one or two combat engineers. The TOP is expected to maintain visual observation of the battlefield. When a vehicle is damaged, the TOP is to record its location, identify its malfunction or evaluate its damage and either have the vehicle repaired or evacuated. The TOP operates on the battalion radio operational control frequency and the regimental deputy commander for technical matters frequency. If a unit is lost sight of, that unit's deputy for technical matters is dispatched to the unit's vicinity as TOP party.<sup>38</sup>

Repair and Evacuation Group. The repair and evacuation group is organized as needed. Its purpose, as stated earlier, is to render assistance to crews in the form of repair assistance or evacuation to nearby cover. The REG will be composed of a tracked recovery vehicle, a tank repair workshop van, and a repair parts truck. On the instructions of the TOP, the REG will render assistance. In a battalion area there may be both battalion REG's and also regimental REG's. Any attached REG will do all work under the battalion TOP's direction.<sup>39</sup>

Section 5. Organization of Maintenance for Artillery and Signal Equipment.

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<sup>38</sup>M. Pontryagin, "Technical Support of a Tank Battalion in the Attack" Soviet Military Review, (July 1968), p. 31.

<sup>39</sup>Kamyshanov, p. 112.

Organization of Maintenance for Weapons. Weapons maintenance is performed at all levels of command higher than battalion. The degree of maintenance will vary according to size and type of repair unit.

The Front level of command and organization is organized to provide capital level repairs and also complete overhaul of weapons. At Front this work is done by company sized units.

The Army level is organized to perform medium repairs in its artillery repair companies. These companies form mobile shops for artillery and other weapon repair requirements. The mobile shops are used in forward areas to augment regimental and battalion repair units. These shops are equipped to perform electric welding, riveting, disassembly/assembly of optical parts, and adjustment of fire control equipment.

The Division level is organized to perform medium and routine repairs in its artillery maintenance company. The majority of work performed by this company is to replace parts.

The Regimental level is organized to perform routine maintenance on artillery pieces, tank guns, and small arms. The work is done by armorers from the maintenance company at regimental level. These armorers work with the subordinate battalions at their forward locations and also at ammunition supply points.

Below regiment, there are apparently no authorized artillery/weapon repair personnel.<sup>40</sup>

Organization of Maintenance for Communications Equipment. As in the case of weapons repair, the capabilities for communication equipment

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<sup>40</sup>DIA, p. 176.

repair is organized in Front, army, and division levels of command. At Front and army, these repair capabilities are with signal repair units at signal depots. These units are capable of performing capital repairs on equipment. At division level the signal section in the maintenance battalion is organized to perform medium repairs on communications equipment.

Below division level, repair of equipment is an operator function. Certain systems of sophisticated equipment have test equipment and spare parts. These, in conjunction with forward support from division and army, enable operators at regiment, battalion and company levels to perform routine repairs.<sup>41</sup>

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<sup>41</sup>Ibid., p. 176

### PART III.

#### MAINTENANCE OPERATIONS OF THE SOVIET ARMY IN COMBAT

##### Section 1. Battalion Maintenance Actions for the March.

General. The Soviets place great stock in their actions during the Second World War. One such action was their road march into Czechoslovakia in May of 1945. This action was, basically, a road march over a long distance. The march into Prague during the Second World War was also re-enacted in 1968. Both times the Soviets placed considerable emphasis on their ability to conduct such march operations. It is their feeling that the use of this formation affords them a high degree of control and speed, and rightly so. It is a simple and quick way to move. The speed, however, can turn a march into a maintenance catastrophe.<sup>42</sup>

The main task of technical maintenance on a unit conducting a march is the creation of a condition for on-time arrival of all weapons equipment and personnel to its destination, ready for any eventuality.<sup>43</sup> To meet this goal, there is considerable emphasis given to the thorough, detailed planning for the march; careful, premarch preparations; effective march discipline and maintenance; and finally, immediate maintenance action at the termination of the march. This section will address these operations.

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<sup>42</sup>B. Gruzdw, "Tank Maintenance on a March" Soviet Military Review (October 1975), p. 30, and USATTAD, p. 13.

<sup>43</sup>Kamyshanov, p. 115.

Maintenance Preparations for a March. The planning for a march, as in all operations, is the first step. The battalion commander is responsible for establishing the basic organization. The chief of staff and the deputy commander for technical matters are responsible for detailed maintenance planning, coordination, and inspection. These detailed plans will include a schedule for halts, prescribed checks to be made at the halt, designation of what adjustments will be allowed, and setting a series of inspections to ensure the correct performance of preparation plans. The plans will allow for the varied problems that may arise. In winter, they ensure a recovery capability is enhanced to handle vehicles stuck in snow drifts. In mountains, they ensure brake and control systems are checked for proper functioning. In the desert, they ensure preparations are made for excessive wear due to sand, dust, and lack of water.<sup>44</sup>

During the actual preparations, all leaders in the chain of command at company level carefully check to see that the plans specified are, in fact, performed. Once the preparations are complete, a report is submitted to battalion headquarters. The chief of staff and the deputy commander for technical matters will randomly select from the unit, vehicles and crews to inspect for proper readiness. With the completion of all inspections and corrections of deficiencies, the battalion is ready to move.

Conduct of Maintenance on a March. Technical maintenance elements in a march are composed of a repair workshop, assigned or attached recovery/tow vehicles, trucks with spare vehicle parts, and fuel and water trucks. These units move at the tail of the march column under the command of the

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<sup>44</sup>Ibid., p. 115 and Gruzdw, p. 30.

deputy battalion commander for technical matters. Its primary functions are to eliminate stoppages, aide crews of vehicles in routine checks, as well as any maintenance they are performing. Finally, the technical section will assist in the evacuation of any nonrepairable vehicle.

During the march, if a vehicle becomes unable to keep up, it is to pull to the side and perform whatever light repair the crew, with the assistance of the maintenance personnel can perform to get the vehicle operational. The trailing maintenance element will remain with a disabled vehicle for an interval that the deputy for technical matters feels is reasonable or until the following column approaches. Any vehicle that is disabled and is required to be left behind for the regimental maintenance elements is marked, and a guard from its crew is posted. The commander of the vehicle's inspection unit is informed of the remaining vehicle's status.<sup>45</sup>

Any vehicle that drops out and is repaired, returns to the column. It will hold its position until the next halt when it will return to its own unit.

Halts on a twenty-four hour march occur every two to three hours for a period of thirty minutes. This sequence occurs during the first twelve hours. During the second twelve hours, there will be a long halt of up to two hours in duration.

The emphasis during the halt is for battalion repair sections to assist tired crews in performing their required maintenance checks. The checks conducted during the halt have been carefully planned. During

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<sup>45</sup>Kamyshanov, pp. 116-117.

the short halt, the first ten minutes is devoted specifically to maintenance. Particular emphasis is given to special items directed to be inspected by the battalion commander. Along with these checks, attention is given to checking filters, tracks, and any leaks. The platoon leader in units with track vehicles play a particularly important role. They are expected to check all vehicles' suspension systems.

The maintenance support is broader in nature and done only if necessary on short halts. If rough terrain or obstacles are expected, repair and evacuation vehicles will be prepositioned immediately to assist in any difficulties that may develop.

During the long halt, refueling takes place first followed by readiness checks. Checks are made for dust and dirt on the turrets' race ring (Dirt here will render the turret inoperative). Batteries, armament, and communications systems are also checked and cleaned, if necessary.<sup>46</sup>

Conduct of Maintenance after a March. On arrival at the final destination, the deputy for technical matters receives a status report from all units. With the report, a plan is made for needed repairs and their priorities of correction. The maintenance section makes these corrections and assists the crews in making their inspections and adjustments. The emphasis at this time is to get the technical maintenance section working and getting the unit ready to do its mission. When possible, three to three and one half hours are allowed for maintenance following a halt.<sup>47</sup>

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<sup>46</sup>Gruzdw, p. 31.

<sup>47</sup>Ivanov, p. 19.

## Section 2. Battalion Maintenance Actions During the Attack.

General. For the Soviets, the attack is the principal tactical action they have trained for. The purpose of technical maintenance during the attack is the rapid rejuvenation and return to service of the largest quantity of damaged vehicles and weapons possible. The servicing performed by the battalion maintenance section is done mainly prior to and on completion of the attack.

Maintenance Preparations for an Attack. As in the march, the battalion commander prescribes his organization and priorities that he desires to be met before and during the attack. In meeting this guidance, the deputy commander and other subordinate commanders will conduct monitoring inspections to discover any needed repairs. Consideration is given to solving peculiar problems that may arise during the attack. Special care is taken to ensure operability of all equipment when the attack is to be a night attack. Likewise, any unique weather or terrain situation expected to be encountered is prepared for by special checks of related parts of equipment and plans to cope with expected problems.<sup>48</sup>

To be better prepared for the upcoming attack, the deputy commander for technical matters will conduct a reconnaissance of the route to be followed in the attack and of the position to be attacked. From the information derived from the reconnaissance, the monitoring inspections, the commanders' guidance, and any other special conditions, the deputy commander will develop a plan and give orders for the organization and execution of the technical servicing. These orders will also include

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<sup>48</sup>Kamyshanov, pp. 119-120.



the description of the support that can be expected during the attack.<sup>49</sup>

In the preparations, emphasis is on the use of mechanics to assist crews and make up for crew inexperience. This use of maintenance personnel also reduces time and improves the quality of work done in preparation for the attack. During this phase, all technical maintenance personnel are briefed as to what to expect in the upcoming action. If all can't receive the briefing then, the officers involved with technical maintenance are at least expected to get the information. Along with the briefing, there is a considerable amount of work done. Preventative maintenance operations two and three are performed regardless of mileage. This is for the purpose of preempting movement halts. During this same time, the vehicles get whatever tools, spare parts and cross country expedients that they are missing. The damaged equipment collection points (SPPM), REG's and TOP are organized at this time also.<sup>50</sup>

Conduct of Maintenance During the Attack. As the battalion initially moves on the attack, the maintenance unit will move in the same organization as during the march. The repair units will follow on suitable roads when the terrain conditions are poor and impassable for wheel vehicles. Otherwise, they will follow to the rear as in the march. Normally in an attack, the maintenance section will be reinforced with elements from either regiment or division. The initial actions that it will take in the move to the line of attack will be to evacuate to cover defective vehicles, recover lightly stuck vehicles, and if necessary,

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<sup>49</sup>Sosnowski, p. 55.

<sup>50</sup>Pontryagin, pp. 30-31.

provide fuel and parts. The deputy battalion commander for technical matters is in charge. Prior to move-out, the repair section will receive specific instructions concerning what repairs they will perform and how long they will spend with any one vehicle. This time will normally be no more than fifteen to twenty minutes.

When the battalion is attacking a position which is defended by an enemy they have already fought with, a TOP will be used. The TOP will move in an armored personnel carrier behind the advancing maneuver element of the battalion. Normally, this distance will be from one to one and one half kilometers. This distance will be dependent on the requirements for visual contact. In the event a company is detached from the battalion, it will form its own TOP.

While the battalion is attacking, information about damaged vehicles is sent to the TOP by visual signals, messenger, or by radio transmission over the battalion control frequency. If a vehicle stops and there is no signal from that vehicle, the TOP will dispatch a vehicle to clarify the condition of the vehicle.<sup>51</sup>

When a vehicle signals for help, a recovery vehicle will be sent. The disabled vehicle is moved to a position where it is covered by friendly fire and likewise, protected from enemy fire. Figure 3-2 traces the following steps in vehicle recovery and evacuation. In step one, the TOP will determine the cause of damage and whether the crew are able to continue functioning. The second step will be the TOP calling the REG to

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<sup>51</sup>Kamyshanov, pp. 119-120.

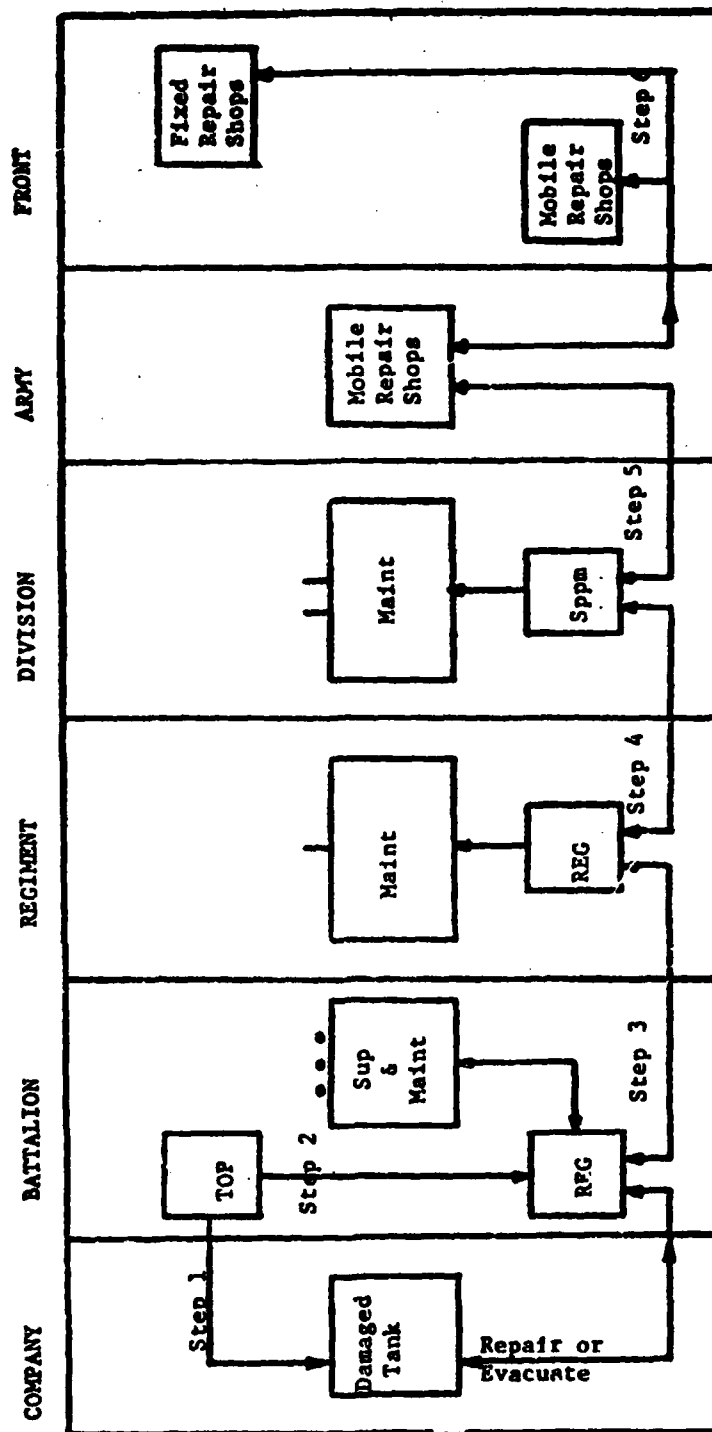


FIGURE 3-2

52CACDA, p. 6-7.

come forward. If the damaged vehicle can be repaired within five hours, it will be. Step three is for vehicles requiring longer than five hours. They will be moved to the regiment's REG. The regiment REG will evacuate, by division assets, vehicles which they can't repair. Steps five and six are for vehicles that have to go to army or Front level maintenance units.<sup>53</sup>

The emphasis in this whole evacuation process is to prevent any bottleneck from developing due to disabled equipment and to ensure a timely conservation and repair of equipment needed in combat. This makes the best use of recovery assets since only those pieces of equipment needing to be recovered are recovered.

Special Maintenance Operations During an Attack. The most expected special situation is that of a water obstacle. Recovery vehicles are equipped with special cables and positioned where they provide immediate assistance. All vehicles are reloaded with fuel and ammunition before crossing. This improves their fording and submersible characteristics. The REG of the battalion will follow the rest of the battalion closely so as to provide immediate assistance. It will keep close contact with the TOP and follow the battalion across the obstacle after all other vehicles have crossed.

The second special situation which requires special maintenance considerations is the case of nuclear, biological or chemical (NBC) contamination. Battalion maintenance technicians will not stop to render assistance. The regimental REG will give assistance in the event the battalion REG doesn't stop. Particular care is taken to decontaminate

equipment before it is either moved into a collection point or is worked on. Most of the maintenance personnel in all REG's are trained in NBC operations. This allows them to check equipment themselves.<sup>54</sup>

### Section 3. Battalion Maintenance Actions During the Defense.

The defense allows units to correct those vehicles damaged in the attack. This, combined with new requirements due to ongoing fighting, generates a sizeable requirement for the battalion maintenance section.

The defense provides more time than the march or attack to perform required maintenance and inspections. The battalion mechanics are normally assisted by units from regiment and division. Most work that is done will be done on the vehicles in their positions. Only with the commander's permission can a vehicle be withdrawn from the line for repair.

The REG will perform repairs and evacuation to regimental collection points while the battalion is in the defense. While not working, it will be located in the immediate vicinity of the TOP.

The TOP in the defense is located near the commander's observation point. It is usually put in a covered position. A TOP will be organized in the battalion's second echelon position. This will provide flexibility in the event of an enemy breakthrough or the use of the second echelon forces in a counterattack. There will be a control unit operational at all times as a result of the TOP in the second echelon.

During the course of a defense, the maintenance evacuation operations will function the same as in the attack. This lends simplicity to the operation since the same functions are performed whether a unit attacks or defends.<sup>55</sup>

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<sup>54</sup>Kamyshanov, pp. 123-125.

<sup>55</sup>Ibid., pp. 175-177

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## CHAPTER IV

### CONCLUSION

#### Section 1. Problem Restatement.

A comprehensive presentation has been made in regard to the Soviet maintenance organization. In presenting this information, the author has attempted to follow the framework of coverage established in the first chapter. The presentation has been detailed, extensive, and lengthy. It is, therefore, good at this time to restate the original research question. This will hopefully focus the information in a perspective where a conclusion will be meaningful and more appreciable.

#### Section 2. Research Question.

"How is a Soviet Motorized Rifle Battalion maintained?"

#### Section 3. Related Questions.

1. What influence has the Soviet geo-resources had on Soviet logistics and maintenance in particular?
2. Has the recent military history (since World War II) exerted a noticeable influence on Soviet military developments?
3. Is Soviet logistical doctrine conclusive to good maintenance?
4. What effect have Soviet "blitzkrieg" tactics had on Soviet maintenance operations?

#### Section 4. Author's Conclusions.

General. I have <sup>cont</sup> presented what I feel are the doctrine, organization, and operations the Soviets use to maintain a motorized rifle → next page

<sup>cast</sup> battalion. ~~It is my opinion that~~ <sup>is</sup> this system which ~~they have~~ developed has the potential for maintaining that battalion.)

I feel that <sup>is</sup> this is the result of a strong defense oriented geo-resource production base. It is also the result of an emphasis on simplicity in the mobile, forward support of the motorized rifle battalion. Finally, the potential for effective support is in no small part due to the orientation on experiences gained from the Second World War. ✓

I use the word potential because military operations are highly dependent on people, their proficiency, their proper utilization, and on a probability of their success. For the Soviets, their maintenance principles, organization, and operation hasn't been fully tested against an opponent of equal or parity strength. In the event this were to take place, the Soviets could find that they have placed too much responsibility on their battalion commanders, battalion maintenance sections and their lines of communication (LOC). Most important, the Soviets may be confronted with the fact that their dependence on officers such as deputies for technical matters may cripple operations if these men aren't present. This is particularly true when we see that there is at present limited emphasis on a non-commissioned officer corps in the Soviet Army.

The proof is in the actual on-the-ground operation. It may crumble, or it may harden. Most important, however, analysts must give credit to the fact that Soviet logistics and in particular, maintenance, has come of age.

Strengths. The effectiveness of the Soviet efforts is in a sense its austerity (The point most American defense analysts criticize). The Soviet military comes from a "no-frills" environment and background.

This allows it to put its efforts only on necessities. It also tends to reinforce attitudes of self-reliance and appreciation of what little one has. This is seen in the forward support concept. The Soviets send the maintenance support where it is needed. There is little or no zealous, misdirection by subordinate units since the guidance and direction for support comes from the same source that orders the battle, Front headquarters.

This coming of age is nothing which has occurred overnight. It has been a long, evolutionary process starting with World War II. The history of Moscow, Leningrad, Stalingrad, Kursk, and Berlin have driven the Soviets intensely. They have become mechanized and armored as a result of history. This mechanization has forced a development of a responsive, mobile, maintenance system. Broken equipment knows no nationality, and commanders of all nations are required to accomplish their missions, regardless of circumstances. For those two reasons, the Soviets' system has undoubtedly been developed to be effective. If they can't maintain the mechanized equipment, they can't defend "Mother Russia." The only proof of effectiveness is conjecture, but from the tone of writings, actions against China, and successes of the nations they support, indications are that the probability of readiness is high.

Finally, from the military point of view, the Soviets apparently have tried to emulate the axiom of KISS (Keep It Simple Stupid) to the maximum. This is particularly true in maintenance. Their control is centralized. Maintenance control comes from the same source as the control of the battle. Maintenance assistance either comes from or is directed by that commander. A large portion of the equipment is standardized



so as to facilitate battle-field recovery, resupply, or operations. All repair units are mobile and uniformly equipped to provide on-site mechanical repair. This ability is not restricted to small (Routine) repairs but major (Capital) repairs as well. This is key on the high intensity battlefield. With the forward support has come an orientation on crews to check only critical, needed items and maintenance personnel to do repairs. This, in turn, eliminates needless, unskilled maintenance effort. Probably the most important result of their approach to KISS is the Soviet emphasis on centrally controlled and directed preventative maintenance. This has the required job done before a problem develops. It is also done without the biased, sympathetic control of a sub-unit commander.

Weaknesses. (As I said before) This all looks good on paper, but how is it in operation? There are weak points.

Centralization is good, but it sometimes stifles initiative. If the battalion commander isn't present or the deputy commander for technical matters doesn't arrive in time to say evacuate or fix this, what or who says "do it?" There is an altogether too great dependence on these two individuals. In an environment of encirclement, electronic countermeasures, and rapid movement, no one individual can be depended on to know, see, and do all things. The Soviets may find that this dependence on centralized control are hidden catastrophies.

Many analysts say that Soviet lines of communication are their main weakness. This fact is a truism, applicable to all nations. The critical note that is added is that the Soviets have emphasized Front control of maintenance support and logistics support in general. If

the line is cut a unit's ability to sustain itself is limited. The battalion maintenance section is small and depends greatly on regiment, division, and Front for evacuation assistance. The reason for Front units is to support the battalions. If they can't get to them, they can't support them. This could mean a lot of "broken" Soviet equipment on the battlefield.

The last and most glaring weakness in Soviet maintenance is its extreme dependence on officers. The deputy for technical matters is the man. If he's not there, nothing maintenance wise happens. This attitude is reinforced by Soviet attitudes on obedience.<sup>1</sup> The deputy for technical matters is human. He must eat, sleep, and even die. If he's not there, the world of maintenance by doctrine will stop.

Nowhere did I find that a motor sergeant existed. All inspections were performed by officers. Any assessments that had to be made were made by officers. It was as if NCO's did not exist. This emphasis or lack of will be critical in time of war when officers tend to become a shortage commodity due to circumstances.

Conclusion. Finally, the most important conclusion to be drawn from an evaluation of Soviet maintenance is an appreciation of potential enemy's life blood. He is not maintained as poorly as some analysts purport. He is, on the other hand, not as impervious to thrown tracks and maintenance difficulties as his propaganda and our fears would have us believe.

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<sup>1</sup>Christopher Donnelly, "Military/Political Infrastructure," The Soviet War Machine, ed. Ray Bonds, (London: Salamander Books, 1976), p. 40.

He is a worthy opponent that has come of age but is human and trying to extend his ability with sometimes fallible equipment. As a matter of fact, his preponderance of equipment is almost as much a hinderance as it is a threat. Technology hasn't developed the no down-time tank for any country, and the Soviet Union has a preponderance of tank or tank-like vehicles.

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